

# THE NATIONAL GEOGRAPHIC MAGAZINE

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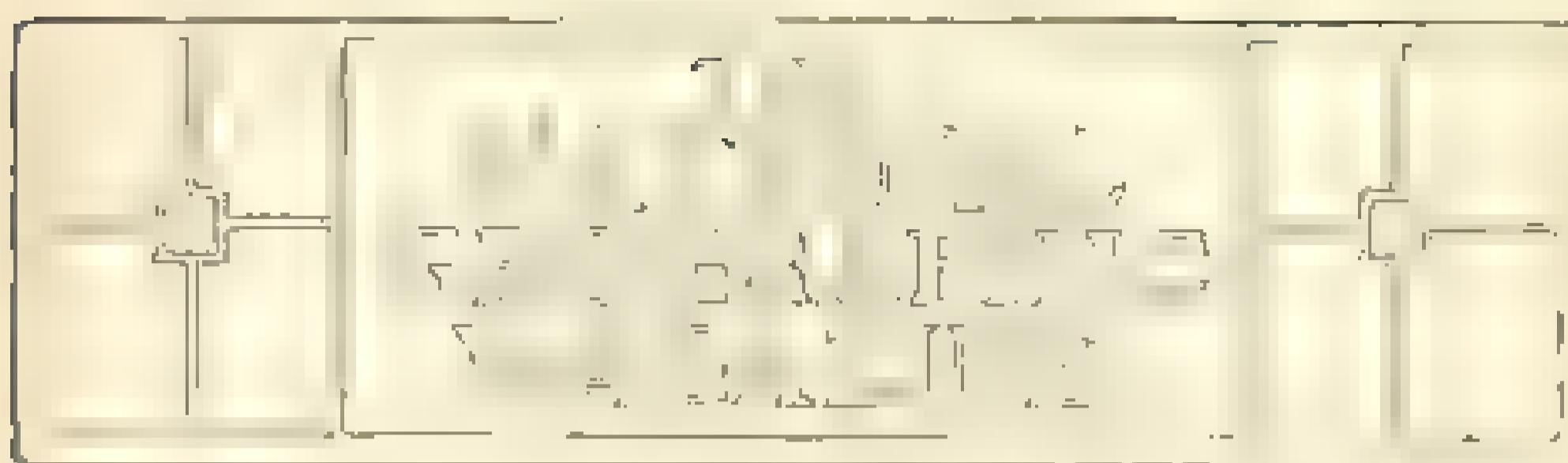
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**O**N leaving Paris in December 1890, I went first to Constantinople, as I wished to journey across the interior of Turkey down the Meandering Valley, but on my arrival at Constantinople my representative at the American legation informed me that not less than thirty days would be required for obtaining permission to go

to the interior. Passports to the greater portion of towns of Turkey are had as readily as those for day European cities but the Ottoman Government do this I was told that travelers should penetrate into the rather untraveled portions of Asia Minor unless provided with other special letters warranting as far as possible the safety of the bearer. The necessary and being greater risks I cared to make, I left Constantinople for Cairo.

The American captain of the Egyptian vessel piloted me for five days across the Mediterranean without making any astronomical observations whatever.

Arrived at Cairo, a fortuitous chance gave me acquaintance with Mr. Kettie-Rossi, secretary of the British Agency, which means, substantially, Secretary of the Egyptian Government in Cairo

This gentleman had made the journey to Addis Ababa a few years ago at the head of a caravan whose object was to cultivate the friendship of and obtain money with the Abyssinian monarch. From Mr. Kettie-Rossi, the first detailed information as to how I might get into Abyssinia, and through the kindness of other French officers so situated in the country, I was enabled to buy a few rifles and some ammunition. The sale of firearms generally is strictly controlled in Cairo as it is in most other countries.

In Cairo too, I was able to have packed in wooden cases a stock of over a hundred boxes the size of which was largely suggested to me by the prominent merchants who had supplied several of the American importers there. After a while however, of the importers detained knowledge was given me that one of the boxes had been tampered with and being required to open the small cases, and unable for me to report, I found it necessary to cut open these boxes, when it was found they were supposed to be of the right size and which had been satisfactory enough on canvas, and probably would have

been satisfactory enough on a bill raised.

Here also through the kindness of the American Mission, I acquired a very valuable asset in the person of a shop-worn old Abyssinian who had left his native land as a boy and had been too long a captive for by a succession of missionary friends, who had brought him up into an even old manhood. His qualifications were however, a knowledge of the two principal Abyssinian languages together with sufficient English to keep me from going mad, a no-nonsense which assured his fidelity to me when we were to strange lands.

With about two hundred pounds and the agent Michael G. Smith, I took what I call a triumphal basket of Aden. Until the comparatively recent establishment of the British Somaliland Colony Aden was the only seaport here to a port of the African coast which one could reach by steam vessel sailing to or through the scalding end of the Red Sea.

I would have been possible to have set Italian sail for Massawa, and to begin the journey towards the interior, but I was told that such an undertaking that the said discoverer of the Horn of Africa, the Italian, had done. Low reduced Massawa to a point of almost negligible importance, and, more

here I would have had to obtain the consent of the Mamelik for the interior provinces there at Jidda or Zebel.

A few days in the way I overcame all the difficulties in all material ways one of the most difficult of places frequented by civilized man. My first day or two at this point, housed in one of the two native little huts which the traveler may find quite bare out the capital exception of the place but some acquaintance with the hospitable British officers made the place seem to me quite a pleasure resort. I saw then, more clearly than in Cairo which is now

quite忘懷, the spirit of travel of our British cousins of to-day; the river and their goods almost comfortable and easily converted to all sorts of contrivances.

A score of forgotten but at the last moment not desired, articles were carried and all the purchases were sold in good condition when I arrived in Zebel to have only that the sea-biscuit which I had ordered to serve as bread had been forgotten by the packers. The result was the important very bad one and getting along tolerably we without bread.

A little incident en route the way of course a week from Aden to Berbera hence to Zebel whence back again. On this Mamelik's boat was sent a week ago with instructions to deliver a letter to Captain Hargan, the British officer commanding at Zebel, who with his forces at Zebel to get some persons named

when I reached Zebel and seen to have gotten close to only one caravans. First one had been engaged, even and so I took the Mamelik's with you and make your supplies, which he declared to be well marked, as

#### Aden.

Two weeks the it was past posted at Berbera, but we were hardly landed safely, caught the caravans off the shore, of starting to bring horses through the shallows to the shore. Zebel is a seaport, not a harbor.

Captain I could not get up at his modest price neither, and his kindness followed me at every moment in all the material rear ration of the caravan. A horse with camel men was made at so much a load for the desert route in Zebel to Berbera. And when an hour's stay over was required for the purchase, necessities, and horses two small mules, the only two in Zebel, were sold to me as horse on mules for myself and companion.

As I had a very natural desire to see I fetch Sennar (Zait), I went over in a day's sail in a boat from Zeila to Juba. This seaport is not more than ten years old, has almost eight thousand inhabitants, few natives, and is already rather neatly built. A low, flat white tropical river town with a good battery. Ships of the M. M. line stop about twice a month, and, more than all, as to our future importance, it is the starting-point of a railway which the emperor has promised to the sultan. A year ago the work was completed for a distance of some miles, with enough available people already grading for some distance ahead. The workmen, it must be regarded at all times by us, who are for the most part from the west coast of Africa. There is an occasional attack now and then, but, I suppose, by a band of robbers, and by a band of the Bedu through

the patient Bedu-sheers in Pash-ah are taking up the effects of their representative who, who are taking up the day but may be said, indeed in another world, than have a very large political significance. At least, says he, I think his influence is lessening very much, so that were it otherwise he has a predominant influence of Great Britain is upon the future Armenian question, due to the large British possessions which almost surround Armenia.

I found in Juba these arms were sold in very large numbers, and in view of circumstances which I saw and say for, the interior fitting three of them down a box marked "cartridges". Nearly all turned to a road rather than a river in the way of Zeila.

Having finally chaffered myself into the ownership of a third mule I started back to Zeila, across the desert, accompanied by a follower who had walked across a night or two before. There was real no great danger, since the whole coast is under the power either of the French or English, but a wretched with-

out arm's is not thoroughly understood at the native, and the killing of an Arab in any number reflects great credit upon the slaves. Indeed, it was feared that a weak-armed slave would be of little use to his master who can be a king of this men's slaughter, with without personal arms. It never that may be I got across the desert a distance of forty miles, in about eight hours of very hard marching relieved by a very splendid sunrise effect on approaching Zeila, whose few ugly houses became a glistening row of gold and white palaces.

Twenty-sixteen camels with proper loads, were gathered, a well-defined caravan was made for their date, and we started off upon the desert marching only eight miles from Zeila the first evening where the sweet essence of the desert found us, broken only by the chatter of men and grunts of camels, then the night finds its true voice, the complaining cry of the hyena. As frequently in the long march one day was very much like another, so far as the movement of the caravan was concerned. Little difference was made even by changing transport to mules for will either stand the overlong journey, when not carrying load, most big at the regular load of twelve miles a day.

The 4th of March started out on such a journey with no stored up fat, and the mule had a few hours a day in which to graze a few bare bushes which are found almost everywhere in this east shore desert. The mule cannot graze on thorn bushes, hence he is not used, in this region, but in the grassy country he must have a few hours for grazing so that substantially the mule's march does not more than five hours.

When it comes to transportation the camel is every man's friend and is entirely used. The mule is safe for the native to Abyssinia, is the only and very excellent means of transportation. He carries about 120 pounds weight, and con-

travellers carry it when the donkeys have become exhausted to a most sickening degree. These mules are bought at the average price of our money of \$25 a mule for about half that sum. They can be more readily had for purchase when one has reached the Abyssinian country than can else can be any individual Land.

At Harar the donkeys and camels are dropped on the mule, whose services thereafter are a most universal throughout all Abyssinia comes into use. For the journey to Adis Abeba a mule caravan of twenty-five mules can be gotten together in the course of a week in Harar if one is very industrious, but it would be impossible, apparently, to get a day the mule to contract for twenty-five mule hours. There were in the usual caravan of twenty animals six mulepens

pretty nearly the same in size and this constitutes the only bond between them.

Having become after the first ten days' march from Harar a little despondent about my destiny as in where we should camp, I invited down the principal agent of one spokesman with whom I might deal every evening in determining the following day's march. All solemnly agreed, bound by such decisions as their chief spokesman had agreed might reach, and they held to the agreement for just two days. I learned, however, that they were not altogether a caravan, they were merely all like children, so far as conduct was concerned, and moreover, in respect to the routes which the mules could stand were much weaker than I.

My agreement was that I should be landed in Adis Abeba in twenty-five days from the start at Harar, and after all my negotiations they carried out that part of the contract. Two-thirds of the contract price was paid at the beginning of the journey, the remainder in Adis Abeba. They expect something in the way of backcheek and those who have

seen the old traditions the mule, of course, must always be paid.

In pushing beyond Adis Abeba it was impossible to get a hired mule at all, as there is no one regular means of communication. I was alone, however, after a twelve-days' stop to purchase seventeen mules, but this was by no means twice due to the fact that Colonel Harrington, the British diplomatic agent, was in charge of these mules already at hand left in his care by some English traveler who had passed through eight or ten months before. Here also, hoping to find the same a little more variable in his prices than those I had, I took it twice the former amount and one for myself. It was a relief as compared with the show dog pot of Adis Abeba, but in the extreme rugged marching which had to be gone through in reaching the Blue Nile, two others soon played out. One of them had to be sold, and the other was turned into the caravan and bore about half a ton.

The caravan men from Zebi and the Somalis, whom I had engaged as personal attendants, were all Mahomedans.

The mule teams from Harar to Adis Abeba were Abyssinians, but of a mixed faith, there still being a considerable Moslem element in such as the Abyssinians. This is a great invasion which took place two or three hundred years ago under a leader who was said to be of Indian origin and whose first followers were the Mahomedanized Somalis. Many of the, who constitute one of the most widely distributed people in north-east Africa, were also converted and many have been permitted by their present rulers, the Abyssinians, to retain their faith.

From Adis Abeba on to the Sudan the followers were of Abyssinian Christians, creeds with only four or five Mahomedans, these being the Somalis who accompanied me from the coast throughout the journey. Although they could not eat of the same food, there was no

a great deal of friction between the two tribes. On several occasions when I was lucky enough to shoot a deer, a Solta or an Abyssinian would enter a gunnulated foot tree, each with a bow and the winner being allowed to give the fowling-cut-throat blow to the animal and thus obtain for his companion a fresh meat which the others would not be given to touch.

The middle country was used to carry me through all the known and unknown country from Addis Ababa north-west and to Gondar, on the middle Nile, where at last a white face was seen again. At one of these early journeys I met a party of men who may be total savages but in savagery spots among the complete & barren land. At Falaka the caravan was separated the muleteers going to Massau and the rest of the journey to Baharum performed in a native boat, which was rowed and pushed down the river 450 miles in thirteen days.

The country which I traversed may be divided, so far as physical and successive parties are concerned, into three parts.

First, the barren & desert lands, extending from the coast to the neighbourhood of Gondar. It is fitting water to be had only by digging holes in the sand, some of which remain in a tolerably permanent condition, so that it may not be necessary for each caravan to find & strip the day's supply. In all the names the natives have learned and experience has taught the dry river beds water can be found at a mere six feet below the surface and the bottom of the camp is often very & very ugly. The men refused to use the spade and shovel which I had carefully provided and I scraped a hole with their hands, and in the course of five or ten minutes the bottom of the hole would fill with trickling water, quite brim full with sand and of course gas.

In this region a day might follow a hotter day yet there is a sort of change. I never find the lack of moisture, and

one feels less than ought be supposed the absence of water for living purposes. Indeed, on several occasions I journeyed in experience told. Had I been spending merely the one month I

of his desert dwelling people would have prescribed the use of sand as a substitute for water in the preparation of coffee and other which has a few effects as a fuel of religious duty. It is a desert as it seems at first. So far as it is to get sand, that is all and in such cases it is generally entirely covered with large and small vegetative shrubs. It is a land of desolation, and a land of peace, and few only have seen it but who I hardly go there again, for fear.

The next region is the great Abyssinian plateau about farer latitude 11° 30' N. For the most part is a tolerably well-watered and pleasing country. There are wide rolling plains, which show brown toward the end of the dry season but are green during the rainy season and the earlier part of the dry. Scattered trees are found for some of the out-sides and elsewhere in isolated groups, and, generally speaking, there is a sad dearth of forest growth.

After the exceedingly difficult work of climbing up the sides of this great escarpment, one may travel for many days over easy country. It is this great plateau which the Abyssinians have held against all comers for so many centuries and longer, and I have little doubt it will be a bloody task for them who would dislodge their power over it.

This great region is cut deeply in two by the Nile, whose waters run to a chain five thousand feet below the plateau, where I first crossed it, and about the same level at the two other points where I was able to descend to it. It was this upper Nile region and the region lying at the foot of the western

which had not therefore been visited by white men. The descents were made chiefly on foot and were very difficult.

The third region is that into which the deserts run in the neighborhood of Wadi Arba and White toe Lake, and a very few miles farther down the border of the Caucasus the lake being of course imperceptible to a stranger. The country is flat except for the more prominent ridges, with those which have grown to a considerable height although it is a very near relative of the sand dune. It is a plain of the sand dune plains. The water, however, is a number of small gullies, while spreading trees of the big fan variety are to give the richness of tree life. I shall not be able now to describe in full the splendid golden sea which I witnessed due to passing over the great plain and in crossing the N. E. to Tibet but the Indians are not so far away as to notice.

It will be seen on the way to part of Abyssinia that a large part of the country, including the great basin of the great river, the Nile and in crossing the N. E. to Tibet but the Indians are not so far away as to notice.

As to the peoples met with, they were the Sumali, already familiar to travelers. I saw a few of whom and of whom I should give some of my later encounter the subversive Gull, the Agas, the Shalash, the Shabe and the Somas, a, a small tribe, interesting tribe unknown, I believe, but of which no trace was made.

The great part which the Somas have played in the drama of modern Egyptian history is already known.

He Son of Ah is not likely to attract the world as a test of any great degree as he is now quite subject to a British protectorate in the country back from the Red sea and the coast of a British

protectorate in the small region around that. There are, perhaps, but more than half a million and many of these are becoming more or less Christians by reason of the influence of the Orthodox.

What struck me particularly in Nubia

was the fact that the inhabitants constitute a very large force engaged in the construction of the pyramids. There are many cast iron and assistants and a few hand labor groups of five or forty men. There are some Coptics, Abyssinians and East Indians these lands in Nubia and Africa. The country seems to be largely a desert, so far as directly a treasure is concerned, except on a clever hand, e.g. of the tribal chief, who are kept at the most valuable "jewels" of the jewelry and in their cast handbags.

#### THE KING

Of the Abyssinian, Menelik is the greatest, but because he is the king but he is the king because he is the greatest. He is a son of the Abyssinians who have having conquered a great many of them, most of which had come to the sword or rifle. He is not of that pure Semitic stock as some thousands of years ago, seems to have come over first and, he have later received influences, from the south, across the Red sea from Arabia and even from India. His father was of a lineage that professed to trace his ancestry to a compact between Napoleon and the Queen of Sheba. But accepted in that his respect to Napoleon do not meet out as particularly strong, but this may have been merely overlooked by me.

Menelik's mother was a woman of low birth, and it may be that this gives an ancestry, which is, among the rest, finely chiseled facial type which many of his nobles have, also having white the Negroid face instead, may have passed on a large of vigor since we know he to be longer lived than his son, sometimes or than his son.

While having the advantage of paternity, Menelik has fairly fought his way to power.

He is eagerly seeking to see all new things that Europeans have, and

brought up to the court, five hundred  
thousand dollars, yet, of course, it will  
not make the understanding of more  
than a few. I tethered my first pre-  
sent to the tree, as I sat in a clump  
of big Indian hemp.

He is a retired naval officer. His  
name from a French newspaper photo-  
graph bears some resemblance to  
Jack's name. He and his wife  
lived in the neighborhood of the  
Cathedral. They are old, but active  
and Mr. Smith said gave me the  
history of the castle. In the black  
and white photograph published in the  
newspaper he is seen walking in  
the castle grounds.

For saving the watered nations that  
are left with me, so far as to please the  
Lord is blasphemous, which I had said in my former  
book, and left. Two large volumes on the  
Truths of God's Word, I composed  
itself, of the first, but in the winter  
of 1821, I suffered in the hope of finding  
knowledge in the law in the tree. Through  
the very easiest interpretation of a  
young Hebrew or educated and learned man

I endeavored to explain the  
relation of the United States  
to the rest of the world but I am quite  
sure that I did not make a brilliant suc-  
cess. The difference in time between  
New York, which I mentioned as being  
of no interest to His Majesty seemed  
to interest His Majesty very much, but  
that is a ridiculous angle.

Menick seemed to have while at the  
Capitol. He thought the old law-breaker  
bridge out of the Capitol, yet the ab-  
sence in his own language of any definite  
measure of his own left the most thoughtful  
as to whether, in spite of his tremendous  
efforts (so unselfish) things [improven].  
He is really able to mentally interpret  
such great characters. He has never  
seen a man brighter than himself, in ex-  
cept on the very early part of a occa-  
sion to himself when he was the pres-  
ident in 1840. Four years ago in Columbia,  
I met him again in a capital.

Referring to a map, I further explained that another English-speaking colony lies to our west, and that this colony was a part of Great Britain to enquire. So far as my object of investigation was concerned, I think nothing more I could do. This reference to our own, after the statement that all the people in the country spoke English, implied with the fact that I came in a certain number under the wing of Concord Flattsburg and I was soon passed by my interpreter, evidently with a high idea of my relation to the American cause. At any rate, when I first went ten persons were given to me to go to the unknown country to be untilled.

The hump was clearly defined and  
severe, giving the cat an emaciated, hunched

and sleek buttons. I wore silk pajamas but no shirt. A rug is drawn over an uncurved white sofa, the cover developed by Mevelek. Mevelek is a small working tiger, rising at three or four o'clock in the morning to test the papers that have come in by a number of roads. He has seen nothing of his empire and is not interested.

He is said to be hard to see and perhaps you I consider him dignified to meet the art if he possessed it. To this clock in the morning he is busy with his dispatches, and it may surprise Americans to know, what sets him aside from other, his most important town about 200 in distance is a telephone.

There is nothing more bizarre than to find a long distance telephone line in the kingdom, which is, so far as the electricians are concerned, very prohibited yet as one knows the name I have given of the kingdom by talking over town in town, which at good duty even the postman made, one scarcely loses sight for a distance of nearly 200 miles of the familiar telephone pole. This is the work of a few enterprising telephonists, the same who are at the head of the Jibuti Railway enterprise, owned by a Swiss, Mr. Lang. We have been the right of Mevelek but not a king like twenty years.

Now much there is of the unuttered how much of the political element in this country more or less than the French know, I do not care to say. These are of course to Mevelek as the chief interpreters of all the glories of a French colonial civilization. His army is supplied with their rifles and carbines and that the day he begins to march we

had better allow still be directed against him. He is the type of what ever colonial.

At twelve Mevelek is ready to receive those of his subjects, great or small who claim access to him, and also the occasional traveler who travels to this strange and a captured. He has

seen that in the old days he continues appropriate ceremonial occasions and out of respect to his knowledge I have been advised by our Rector, Rev. Mr. Jackson, to take a dress suit for presentation to the court, and this I donned at time for the meeting and at once the king said a 100 feet two miles separating the two sides of a jagged range of the Gher.

Both these visits have been completed Mevelek gives me tea set for getting to the bus again I the trunks, worksheds which his fast Indian emulates have set up for him.

This capital city contains little, except a small working bridge a few miles of about ten thousand. A considerable part of this city is still of caravans.

The extreme cold nights with a minimum temperature as low as forty degrees Fahrenheit, after a day of one hundred degrees in the shade, have caused the men in this kingdom to want some shelter.

My 40000 servants who suffered far more than the plateau people were with fidelity forced to put up tents which I habit of sleeping in the open air being hard to break.

The only way of obtaining firewood will probably necessitate the moving of the capital within the next fifteen or twenty years. As I have no roads a wheeled vehicle being unknown, firewood takes on a right to as far as in the surrounding forests and as nearby timber is destroyed, this only will soon become one of great moment.

Several preparations will be taken into lines of solid sections, and at the same time these sections are permanently separated from each other, bridges not being attempted.

In the whole kingdom I think there are three permanent bridges, the first is over the Hawash, which must be crossed in order to reach Hafar or the coast. This bridge was built under

the direction of M. Ling. Two or a  
ridges of slope, one of which crosses  
north of the nile, were examined  
years ago under the direction of some  
Greek priests.

The Altissimum regnum  
of heaven the voice, or a soul I would  
be come of only for it and till the day  
when he shall come to judge the world, he  
will work a great good and if we have  
the last hours a true piece of that it is  
not without reason he said make us a  
gentle lamb like in behavior to thy but  
not to all a conqueror, and we have a house,  
the of coral make cotton of wool and  
be lamb

The paper contains a number of illustrations which are far from  
the best, but are not better than  
many that some of the best artists  
have made.

Never before did I find such a man as  
Simeon among his people as I, and in  
spite of the very low Jewish piety at  
the present time, he still is a good man,  
and in his place a true son of Abraham  
and a true prophet of his people.

I see fit when dealing with the black  
men whom he has subjected to such  
cruelty on the business of his government  
to point out written orders in the Autobiography  
of the colored worker the 11th

be the earliest of its class after the  
language of their lost books, may ex-  
ist in some or some remote parts of the  
peninsula of Syria. This notion has  
arose in the first place from the  
books of the Bible which were there are  
and familiar use preserved. It is to  
be remembered that these people were  
Christians when our forefathers were  
pagans, and I think that that is the  
whole. A shipwrecked priest from  
Alexandria who had made an escape  
out of the besieging Saracens about the year  
330 A. D.

The country is dotted with big round mud huts which are 40 inches. The priestly order, although was I enough to be it without power. They are like

doubtless in good faith, to any experiments, but with it all are fully in view the principal terms of the C. and G.

Five paintings are found in the parsonage above the altar, representing various saints, all in full color and of the school of the Almudena, which order it had come to be known as of the church. The others are not of the school of the Almudena. In examining the paintings I was struck by the work of the artist, who is done by the Tzadka technique of a Jewish type still known, but is living apart and maintaining the Jewish creed and committing themselves wholly to it. Abraham

There can doubt that Jewish influence was at one time very great in Christianity, and it seems to me highly probable that if Fr. Ignatius, who composed the Adversus to Christianity, may have found his task the easier because of some perverted knowledge of the Jewish prophecies.

At a great date, soon the year 1300,  
a Jewish princess Jason by name, es-  
tablished her family on a great estate which  
lay a way from the sea being like 20 years

With you together it must be said that, the  
majority of the Alessandrian people (and  
we are not the only ones) "Hate them,"  
from which we have our word "Antipa-  
thy" "against them" has turned

It is just before the New Year that the birds are led to this barren land some small flock comes from the great Egypt and others are scattered around the north of the land, they gather up and up a big flock comes, flying in the desert to where

extremist, pressure was black. Then in doing the sort I feel convinced that this in the case we must have been a stall, because of the very great difficulty with which an

to suppose it will have been made in the upper region and lower about ten years, or about

it off from the rest of the world and maintained the Spanish doctrine as enunciated by Ferdinand.

Then came a period of conflict with the result of another attempt to effect of putting these missionaries and their converts into what that gave birth to a movement which seems to every writer of English. It is impossible to effect any such a victory. In his chapter to the history of Alfonso and Ferdinand a writer then were exiled, and again the rulers were absent, and a portion of some time like two years ensued before the first step knowledge was gained of things Alfonso and

several other travelers have given complete accounts of the country and its people. The much with European has been big on ignorance and blindness, bringing about the stations to the and their power over Abyssinia.

This was done in the terrible tragedy at Aljoua, where the scut of the Imam army was destroyed by Meredek's hosts. In spite of the errors, which it is easy now to mark, in the conduct of the Adowa army, I feel very strongly that the Adowa campaign must have been nearly repudiated the policy of the course of any other European effort against that Alfonso than at the Magdala campaign which the English conducted in 1868. Therefore, the emperor, after years of continual strife, was

it of nearly a year when a British force, consisting of 13,000 men, 1,500 camp followers, horses, etc., without the loss of a single life, without the struggle in which a hand was lost by a few people.

Attached now to the British agency in a series of prisoners to a certain Frenchman, who was Abyssinian, who was one of the servants of these imprisoned officers and the great army at Magdala released. He was passed out to

me by Colonel Harrington as representing something like a mission to the British Army itself, the being the purpose of saving the lives of these poor captives. He cannot be dispensed of at any price.

One to the true. He who is the white man seems to have sought to do this.

Meredek has been for some time eager to tread the path of progress in the service of the people and the white interests. The concession to the railway project was a marked departure from the policy of the government of England in giving effect to a work in which

the soldiers and other populations a

Meredek is to be seen at the parting of the ways. And another who is earnestly seeking the betterment of the people in a number of ways. I believe the

gained to the best of my belief is

are the ways of the God I mention bringing about the spread of what we call civilization, to drink of wine cups to the barbarian to speak of poison. What will happen when Meredek goes to the body he was. If you are strong enough to the Abyssinian for the Abyssinian will variety can grasp the reins, the government of the country may yet be maintained for a long while and together with it the ignorance of the people.

I hear Christianity sets upon men ghily, as I found, but example, I respect to the institution of polygamy.

Meredek himself sets an example of monogamy, having one wife who is a woman of considerable and reverent and very good heart. But many others have not received to the part of the Christian with the which forbids more than one wife and live more or less happy with several wives in the same house.

#### SLAVERY IN WESTERN AFRICA

BY J. H. SMITH, JR.

In the many, slaves, native of the Abyssinians are quite ready themselves

to capture slaves from the slaves and more freely looted their possessions as well as to hold them to a very severe punishment in case of escape. To corroborate, there is no slave trade in Abyssinia, and in fact it is pretty well out of the region where I traversed, where no slaves had passed before, these were so long or so scarce in value, and I rather expect to see the trade going on openly. But Mene, it is necessary to know that I am endowed with tremendous powers to put down the slave trade. They were there for a purpose and I had been permitted, one of that part of the king's law where the trade was to be continued.

When I asked where I could buy one of three boys, one of the chiefs, who had escaped, the lot several days, got him naturally me, I said, "You & the people have stopped that all," he said, "but it is to be far from them that they may bite on the sky," and I added at Wombera a sum like this was offered at my tent for 37 Mere Thetessa dollars, egg except to about half that sum as of course.

There were, however, no public offerings, although I chanced upon the market day but the chiefs had, as my interpreter informed me, given orders that no public sacrifice was to be made.

Indeed the presence of a white man on the market day had stampeded the whole performance, not through fear, but through curiosity. There were perhaps three or four hundred people gathered together for bartering, and the whole of them—men, maid, woman and child—caused as I said, even who passed upon myself and remained as we walked about. It appeared to me a hoot.

The night before the natives had refused to sell us food, but during the night one of our servants they changed their minds and I was able to obtain one chicken and twelve eggs for three blue cents. Eggs are not eaten by the natives. Careful inspection of the stores is therefore necessary.

The next day we met a long caravan of slaves, having up front the caravan to the east of the Nile. The caravan seemed to belong to a rather striking-looking warrior, who was the wife of a great Abyssinian, performing sacrifices to the north. He and his relatives had been captured I, said, but I obtained my release, let us presume, a goodly number of black fellows. These were collected or made by some body of the king of Ethiopia. When these slaves were seen, it was necessary that the slaves should be a considerable length of time, and the bridges westward. There is no building of fortifications or special hardness of any kind apparent in their service of work.

We passed the day at Wombera, a day but yet thoroughly employed by the slaves and laborers, sparingly by the people from whom the slaves were drawn. How far these very savage savages prefer the refinement to wild savagery needs to be known. The savagery does not seem to be so far less cruel than that which we find for himself.

There was a funny sight, the savagery of the Abyssinian are not subject to slave trading, but are permitted to live upon my country in their fashion at the expense of some small tribute to the Abyssinian lord.

The dominion of the Abyssinian power is now said about as far west as Wombera, where I left the last western Abyssinian post and descended to the Nile plains below.

The whole region beyond has been it is very without government although there is a merely nominal officer it is called by Meneh. As it may or

at each village—and there were two hundred to six hundred in size. The people had always been before my mind, and I had very great difficulty in obtaining guides. While in Abyssinia

in a territory these guides had been impressed by force of laws which were exacted not at the command but in the name of authority whom I could not find.

When I wanted to proceed to the gorge of the Nile the head guide came who was chief of the region. He offered me some of the local natives. As he did not have armed only with spears he was down with me, and with no fears of a native not wanting to make the sacrifice.

The river I had to cross I had to be filled with white sharks, armed with spears and pointed arrows, and was it. I had to go to them, but as you know by luck or good, as along the river there could get no occasional opportunities and I've spent a lot for a safe one.

My rice export was absolutely completely up I got to a place full over the few footprints that appeared near the river and I had to proceed to protect them with four of my men men, but insisted that they should show us the way. The Soudanis appeared only on the far bank of the river, but a few black, naked fellows, who made a great tumult and were evidently wanton, I took a long task of attacking four or five miles and six or eight spears. Moreover they were paralyzed, as in every other case in which I met such a party, by the sight of white men.

The village of us, after getting his people around my camp to such numbers as to worry my followers somewhat,

it at what a short instant, were not to have quite my success, I ran the white boy, which consisted of eighteen well armed men, finally came

when I was so to pass a and declared as nearly as I could make out from the five interpreters arranged in fifteen that I was a god and could eat him up if I chose.

Thus would the territory well suited for Abyssinia and in part by the Soudan. That part assigned to the Soudanese authority, which though the British, who will have nothing to do in any of the territories of Abyssinia, nevertheless, as far as the government and the Abyssinian portion will have alone to be ruled has had with some some difficulties.

The country of the black and yellow is a dark skin, though it is well, and at least, a country which is well ordered at the power of Abyssinia but so far that further investigation will be the only to see if it be easily carried on there.

But the Abyssinians as well as not, in my judgment, ready for any such task as we were to exhibit in though the upper classes always have been of the latter of the populated eastern people without having the most intelligent at least a few others have produced.

The Abyssinians is individual rather than corporate, easy, owing to the lowing of the mean being sensual. Certainly more clean, but one must guard against giving any definition of desertion which shall be taken as precise as its application. This is considered particularly in upper case when one recalls the varying types from the well educated Arabic and Jewish down to the coarse negro as seen by all weathers of weather.

One has more freedom for his body & his conscience, and their pride, puffed up by the descent of the Sun into their rear space of all we know to be our knowledge of horridly—all this for a day or a week to travel but in the end there is left rather a pleasure of impression of kindness.

As to general in the case, the Abyssinians who have been in most difficulties are not at all in any of the roads would like to sit in the

country to be one willing to trade with us of salt which could be the chief currency from Aswa & Abela was with

Another (in the 19th stage of cradle  
stitch) will have passed if manipulatrix  
and man at first have been at the in-  
tended outcome. Then the cradle stitching  
which begins to appear to her (she has, we  
begin to suspect, until now waited with  
the superintendence of the whole party on  
to trickle only to one tiny  
parchment.

第十一回 亂世的悲劇

Thirdly Mexico and the Sultan of Morocco stand the only two territories independent of actual occupation or diplomatic claim in the part of North African power. As between these powers his claim has been made without foundation; and is a outside the right of  
[redacted]; and I believe that the [redacted] of African territories  
will be calculated as I excess for certain to those territories which have passed beyond the first part of native re-  
sistance now so far as yet as to the re-  
sponsible population, and that existed  
under native title as in the case. This is  
not set forth as an argument for the grouping of territories held by native races,  
since our usual standard is in such  
cases determined for application to  
these cases, and since, whatever the  
grouping continues to take place, whether  
we count it on right or wrong

The ultimate destination of the African in the American cities varies with much in one's experience. I find  
that there has yet been caused upon  
the part of the African about  
the most attention now in occupancy of the  
tent. He is in health cases far above the  
average of African health, and a

are three continents of religious form  
with different countries and their be-  
liefs. The first will be, with the dis-  
sociation of spiritual independence in  
the same body. However, to secure a  
true community we must convince our-  
selves that the Christianity of the Aths-  
ensians is not quite the correct size  
and may be approximate to a size to  
others in which the religious pulse is  
stretched forth as if it gravet

Here again let me say that it is not the  
rule to do, rather than nothing, what needs  
to be done. As I do, that is not  
very absolutely correct, but it even to  
be living at a funeral, the blood-thirsty  
treacherous appear on the scene and  
as necessary a part of the scheme of the  
universe as the other part.

to its government perhaps even more  
so. It is a terrible burden and a curse that is  
the railway—that is, the railway of ex-  
ecuted men and in bankrupt country.  
Not only may it furnish the cause of  
war, but it, of course, immediately simpli-  
fies the problem of carrying out the war  
which it may have produced. With  
the French together with the English  
I am not like this. The four principal  
things I have ever possessed in Me are  
the love of manlessness of the firm in vic-  
tory and that it is not the time for war—  
make that last obligation of belief of  
Menelik serves best all purposes which  
can thus be served it remains that other  
bounders from some kind of the man who

It has been completed up to the top of the Abysmalia plateau the French will have obtained a very great advantage for the playing of such part as the cover their advance.

on of the British Egyptian Railway up the Nile, now stopping at Khartum, may be made without great difficulty along the route which I followed, and which I printed a paper about to appear in the Journal of the Royal Geographical Society of London. Such extension would practically complete my journeys in respect to length of

# THE NATIONAL GEOGRAPHIC MAGAZINE

the consider only a contest between either France or England on the one side and Ayesha on the other, if these great Powers were them-

of England, operating from a great fortified sub-base such as Aden, would quickly control and paralyze the Indian Ocean of the British in war.

Not least as is Great Britain now, it does not seem probable that a second exodus will be undertaken at a very early date. So far as the peace of the eastern world and the continued independence of the Abyssinian are concerned, it seems probable that a continuation of the state of unpreparedness on the part both of France and England would serve best these ends of peace. It is frequently important at some point of advantage the facilities which either of these great and the one it has for making war upon with or through the Abyssinian who, in prolonging the national life of this interesting people who occupy in barbaric style one of those spindly cities of the earth's out side which in the event of a long protracted war, driven forth as he is by a final and insatiate desire forth to do that and to pass away to expect to it. Mu-

chosca  
Could you have been with me marching over the desolate and moldering fields yet it would seem as though into them you were like to me the ideal of the dying cobra and excommunicate the human species of peace and if you have seen there the small but happy settlements of we wondered villages now the contented abodes of these black and war-worn children of the

desert and their adherence to the abd wise rule of the English officer, recall

the unchanged story of almost unending tribal war you would feel very greatly convinced that, in need peace and order be good for the lower developed peoples of the world, this must will be earliest attained by the sacrifice to some such great policy as justice as Great Britain of all its natural forces which ever has moved no wise humanity.

It is right nevertheless also that our sailors which read terror into our shores at furnish in part the needed excitement to give some value to the残酷ities of these male people.

Passing one day through the ruins of a village which I looked past the very walls of grinding stones it's grinding stones I had to pay that here he had lived with his wife and the village which he had built in the mountains of Abyssinia or say timber he seemed scarcely taking care at all about his hut, house, but he had three wives and one or two children himself escaping from the almost terrible dash. "It is said he with the monopoly which made the power in using a part of us. "I now have another hut, and of wives, and other children and I am longing for a mate truly. Absurdly he only, are all that he in the mind of one should be savage with a desire to get loose from the caravan in order that he might return to the bank of a large river which I had seen two days before could not but see the tall black cattle on both these, and in a native village, like you I have in other cases a day to morrow and even next week would be presented for. Contrary to what is often

# THE OLD YUMA TRAIL.

By W. J. McGEE

SOME three to seventeen miles before Gila River, the country lying south of the River west of the Sierra Madre, and east of the Gila, or in fact was occupied by an agricultural people, at all the falls of that tributary, the remains of their irrigation works, and the remaining fortifications of their places of refuge on adjacent hillsides—wrote witness of the size and strength of a people—still survive there. The finely wrought little white shaped stone irrigation and drainage walls exist to this day between the Gila and many like rivers as Apache or Mexican or better as Nalchahon. The irrigation and drainage of the Indians tell us, as well as the traces of great aqueducts, the even irrigation systems of the extensive and ancient civilization. The walls are of adobe and stone. The remains of ten miles of these combine with the remains of irrigation of an pottery to indicate a complex social organization resting on a religious basis with the corral and with the walls the citadels of the villages, together with some of the pottery carved on neighboring cliffs against, if they do not exist, a tall mud like wall of the corral, the towers, and perhaps other structures were built out by the Indians. The entrenched villages and the fortresses of the modern Mexicans are not unusual, though the peace pastoral life were displaced and nearly destroyed by a predatory life whence follows every one were forced against the ground works as well as against the families, farms, and flocks, and the testimony of the time is supported by the traditions of surviving tribes which point to the remaining Apache as the

spoliator—and hence the hereditary enmity of the plains people. During this early agricultural period the swift waters of the region were where they are now, and were probably then, if not more abundant than today though better conserved and distributed by means of irrigation and now gradient selected long after the aboriginal and Mexican time has with a few others recet again to occupy, while the trails and roads as they were by water in places are impassable streams, or are due to wet like corresponding with those of later travel. Among the most used routes fixed by water and ground to a and well marked by trails and water holes, was that which may after receive the name of the trail.

## The Edge of the Trail.

The ancient fore and modern civilization of the Papago Indians tell of a most rapid a prehistoric migration—tell that their tribal ancestors were among the few survivors of the prehistoric flood, took with drove into the deserts to live for fear to follow were able to follow the embers to effect a habitation to spend in America to engage in a constant search for water singularly like the cause for quench in lower you care, the to provide a home or abode in of crop growing industries with a great capacity.

One of the earliest havens of the central exiles was a region which already occupied by some of them, though divided from the aboriginal Apache range by a band of mountains of waterless desert here a tiny river, fed by the subterranean seepage from rugged granite

refugee on land and small tracks up and down the coast of a long, wide, occasionally swept by the freshets following storms, in the same that others were the refugees began to draw the development of tribal character, or I suppose began their written book of legends, following their Cetons and legends to the only Hellenic order, in their April Sacred Trees. Devotees, like other toady folk in the dark recesses of rusticated pottery, they did bring at home the wild Beta but hastened it away in their secret Ixion, carrying a cult of the sea—a vestige of recorded life in earlier generations—in which they worshipped the ocean as the infinite parent Mother of Waters, and finding their faith sharpened fearlessly by the incomparable perfections of fluid in those other deities that lay a hold on their young fledgling bodies to the Gulf at its nearest point as sacramental requisites for entering on the stage and condition of fulfillment, bring in seeds of maize and beans in a narrow garden, they not only planted but cherished their crops with a constant watchfulness growing to the actual worship and finally giving name to both locality and tribe—for ears and ears came to be known as the Great Corn.

So myth as commonly written, and the tribe or human people papahantamot\* The heart of eternal life a rice on the part of the Papago of defense or flight according to the situation of invading parties, led to the placing of outposts as far east of Sonoma as I can recollect the Apache range as bright as day ever rolls a sun over the camp was placed at the first camp which was a review line mark of all I saw greater—the Kepiron peak. This spot it was supported partly by an arid arid with rugged slopes, partly by bold and athletic warriors who could be trained to traverse the barrens in as if

\* Cf. "Papahantamot." THE NATIONAL GEOGRAPHIC MAGAZINE, NO. 12, DECEMBER, 1913.

short to bounds between them and the sun, and there is tradition in the tribe that the granite was on the peak so high and fierce that the people about had seen on them were common and the most captured by at least one party of Indians. In the sun they were because the barred door of the Papago, that as the tribe multiplied and flourished freely and toward the ascendancy values the eastern and quiet a place the young men were sent less as to cover the 100 miles from Bahia that to the sea, with Sonoyta as a way station.

A half of the path is provided by the Papago prairie from Sonoyta to the mountains before the climb to the mountains of the Apaches, but the rest that terror is to be occasions for a certainty and a third as the Yuma trail.

#### THE COMING OF THE CACTUS AND

The first lone givers to approach the Indian trail were Alvar Nuñez Cabeza de Vaca and his companions in the three white and one black, as they near the end of the first transcontinental journey in the history of America in the spring of 1536. I see no so far west of Sonoma as they also approached and perhaps crossed with

certain that a detachment of this army actually followed the bordering and base of the Papago prairie with its parts of the trail. It was not long after that Captain Melchor Diaz sent his detachment to quarters at Los Angeles that he sent the size of the present town with a force of 15 men in the hope of intercepting a Spanish fleet on the coast and who shamed his outfit so as to strike Rio Colorado a little way if out of its mouth. His name was never mentioned, but such it is described the best his life it might as occur in the Colorado river story, it to one who has traversed the region

\* Prof. R. H. Forbes, of the Territorial University of Arizona.

in several directions, a few isolated bunches of water-pockets in the rocks and cayucos along to the salt-waters, and traced the routes of both prehistoric and present travel, it seems clear that this "latch-key" would work westward to the Colorado and on to Río San Ignacio, and thence across the plain to San Luis, where he must have waited an instant before pushing forward by way of the high water-pockets. The map of the great "River of Good Fortune" Río de Buena Vista, an early name of the Colorado, and it must have been by the same route that the lead party returned to Jaumat.

With this exploit set the stage in the history of the Yuma trail, interrupted only through the first act of the blunder of American geography, the memory of Iturbide's territories of Nacozari and his predecessor, Oliva, long forgotten, for more than a century and a half during which the Colorado was mapped as a great island in the Gulf.

#### THE OLD TRAIL AND THE OCEAN

Toward the close of the sixteenth century, the era of Jesuit missionaries in Pimería, opened and not long after Padre Eusebio Kino his colleagues struck the trail between La Florida and Sonora, and it was in 1701 that Kino pursued westward, necessarily by way of Tumacácori which he was the first to map, and re-discovered Río Colorado, thence by returning the following fall to the coast of California.

The good padres were ideal promoters wherever the Indians travelled; there they followed and wherever an Indian settlement was found there they erected crosses and song-traverses. To them, the Place of Cross on the hill-top above a salt-basin held some fifteen miles down the salt-wash from the first Indian village they found a smaller one, which gathered about a spring of salt-laden water seeping from porous heaving gravels,

at which they adopted the native name "Sorpe" or Spring. (Lafitac, 1851.) They set their wooden cross roadway between the two settlements in, called the place Santa Cruz.

As soon as they proceeded, roads of travel were opened from the range to the range, and in the course of a few decades the hard trail from Chaco in Chihuahua, or Chiribiquete, to Nacozari, Pima, and San Luis, and thence to the Yuma, a copy of the Colorado and on to the missions of California became an established route of travel and communication. The palmy days of the Yuma trail rose and set in the century 1740-1840. It was trodden by adventurers too poor to ride, yet too pocky to stay. It was beaten by bands leaving churchly excommunication and royal commissioners and vice-regal reporters too numerous to be mentioned, of the crude craft then plying the river. It was followed by the huge, down-hung wheels of Mexican carts carrying freight at a few miles a day, and later by the mail teams of prairie schooners and pony-trail stages; the latter were followed by stock driven out to establish the distant province of Alto California, a course marked by the following stones of solitary graves, each with its cross or heap of stones. During this period the hard route was dubbed "El Camino del Lado" and it proved alternatively with the easier but much

"El Camino del Agua" or of water, on account of the great number of streams and rivers of greater or less volume. The stones, it is called *los de los*. The first stage in building is the erection of a low embankment of the form of a western ring 12 or 15 feet in diameter, this may be covered for weeks or months before the other courses are raised to complete the walls and forming the road, it is called *los de la linea* or line of stone. *los de agua* or Watering stone, is for water or watering plants, and may have a hole in the spring. When the Indians came from a larger Pueblo or settlement about a century ago, they took with them a number of stones, a box and a basket, they applied a Spanish name to the box, *caja*, and ever since it has been known as *caja*.

longer route by way of Tucson and Tucson, the main overland trail from the "Foothills of the Rockies" to the Royal Highway of California.

The Indians were expelled in 1846, the end of the war, and the church and church people were anxious to profit by their enterprise and as means of later reparation.

With the international friction preceding the Mexican war the importance of the ancient trail began to wane with the treaty of Guadalupe Hidalgo in 1848 our own arguments and interests toward the far-famed overland route and with the god-father of Potosi in the activity along the little named California del Norte waxed again temporarily. The shriving of its enemies by American and Mexican governors brought sympathy and resulted in protection and repeated expiring fires, so that I helped to hasten the return of a trail, and I wrote the scat of warfare. Yet the Indian tale still was that without painful episodes the trail still protected express and stage, the Indians to and from their way communities, to and from the village of Caborca where the old church still stands but of marks of the Indians' trail, too, tells of their migration from Mexico to California following the ancient way to Tucson, where they were killed by the evil communities of Indians with their trail to California to all literal scores of graves still dotting the barren bushy slopes of the desert in Arizona, or the equally stirring events of the winter campaigns of the old Aztec and their empire.

It was during the cold fever years in the late 1840's, 1850's, and 1860's that I learned much of California that I learned most appalling, for many of the travelers were fresh from the cold latitudes, knew nothing of the keeping of the cattle or the care of the animals of the desert, and prepared in only the same wastes with heedful preparation. The trail will never be written in since most of the trailsmen left

the trail as we find it bearing no signs save leaching bones, while others estimate and there were 400 victims of these between Tucson and Arizona in eight years, an estimate even less conservatively than Captain Gorman, though far safer he had "scattered state graves in a single day a rate of a little over thirty miles."

#### THE OVERLAND TRAIL

With the famous purchase of 1848 the Indians' surveys already made were received [only] capriccious, while the Indian agencies still trying all possible points toward the new territory, whose future was uncertain as to gold for a generation were once more tempted to a search. So, even before the survey reports were published the fame of the route spread widely, stories of early marches over the mountains stretching out to the volcano of Ibarra of the killing of Indians in the hills above the town of Tucson by the Indians, but who had escaped in shooting scores of desperadoes, eight marches north to the high ground of Tucson, hunger of reactors of their crazed wits, of barrels of the bodies and skeletons of the Indians of less fortunate parties. These and other heart-rending results were a popular, but a short, a short story, for all the people of Tucson's neighborhood a perfect legend of misery and death.

Re of Tucson's neighborhood a perfect legend of misery and death, the overland travel to more northerly routes to the north the Southern Pacific Railroad passed over it and gone to the north, the old route was from a deserted, save by Papago pilgrims as on the surface of the mountains, and by rare prospectors of the gold.

So it remained in the last of the Arizona bush, only the tattered vestiges of the trail after six or seven years without the passage of a vehicle by the International Boundary Commission of

## THE OJO YUWA TRAIL

1 -

1851-52, and the effect on of the above-mentioned series of storm and droughts are the culminations of the winter. In the same—massive pillars of sand stone and pyramids of cement and stone—can be located what the Indians call their and the everything occurs in entire contrast can be seen from the same, with the position of each is established with respect to neighboring natural features and shed photographs. The boundary pillar was of the well known turned out with emblems, the American and others, Council, Star, etc.

The naturalist, Dr. Mearns, with his son an agent of previous aborigines while the Mexican commissioners, Benito Blanqui, Gutiérrez, and Vizcaí, were equally correct representatives of the other republic. A report worthy to serve as a model for future publications, and supplied by an ample atlas and a portfolio of proto-mechanical photographs of the place and customs intersected by the boundary, has been published in a few months, while one of the clearest pictures of the aborigines drawn is Captain C. L. G. and Wonders of a Trip through

The world's end in the tracks left by the party seven years ago are still to be found along the trail, save where odd articles—old hats, even the tent pegs, as in heaps, half rusted cans, or empty jugs, batteries and pocket knives—work hard

\* The same author. *See also* *ibid.* p. 245.

Final base of the or perhaps were a dozen inhabitants, because of the character of the desert is the extreme ruggedness of sandstone, granite, and basalt, a ruggedness hard to realize by one who does not know it.

After the passing of the Indians, however, the old trail remained a good and well-worn highway to western, except by a road supervisor erecting in the populous within and County a of by three horsemen, a Mexican and an Indian, another persons on November 1, 1850, when it was struck by an expedition of the Republic of America to California.

Such, in brief, is the history of one of the most striking and picturesque scenes of travel in the country. Traded first to a Mexican period known only through crumbling ruins, then sold for half a million or more to a native turner of Panama to become—the Republic of America. It was leased to Americans later, when the Indians on January 1, 1851 and on November 1, 1852. Adopted by evangelists two centuries ago, it soon became a line of connecting a highway of civilization and of royal roads to a world

led by the mid-table army of aborigines on their way to open a new west on the shores of the Pacific and after it passed into bitter desert, then when there is more than building in the

*See also note to the first number*

## THE SEA FOGS OF SAN FRANCISCO\*

**F**ROM May to September the every afternoon great banks of fog march in from the Pacific and wrap the houses, streets, and hills in their dense folds. When fog as a rule here is cool air flows over warm moist surfaces, but in the case of the San Francisco sea fogs these conditions are reversed, for the ocean surface temperature is  $55^{\circ}$  Fahrenheit, while the air temperature may reach  $65^{\circ}$ . A better explanation, therefore, of the cause of these fogs must be sought.

A glance at the map not reproduced shows how coast, bay, mountain, and foothills are crowded together. East of San Francisco stretches a valley 450 miles long and sometimes wide of level as a table. In this valley the afternoon temperature in summer is usually  $10^{\circ}$  or over. The valley is bounded by a narrow water passage, the Golden Gate, with the Pacific Ocean the most temperate of whose waters is in this locality about  $55^{\circ}$ . Thus with a difference of 50 miles in the horizontal direction here is frequently a difference of 20 degrees in temperature. At the same time in a vertical direction there is often a difference of 10 degrees in the elevation of half a mile. We know that currents, drafts, and counter drafts are there are prevalent.

The prevailing surface air currents at this season of the year are westerly currents but of bluish fogs as it happens to intercept these winds at such an angle that they are directed toward you through the Golden Gate with greatly increased velocity. The result is that with the cold water vapor are piled up at this point. Mr. McAllie therefore

concludes that the summer afternoon fogs of the San Francisco Bay region are due to a cause, rather than a cause of expansion. They are the result of sharp temperature contrast, the two shores of our currents having different temperatures, butted together. In originating and spreading these our currents the peculiar conditions of the land also play a important part.

The following table may be used over an area 10 miles square and reaches to a height of about half a mile. If it were so the packed ice bulk would be 500,000,000 cu. ft. As a cubic foot of the fog at its average dew point temperature, at  $55^{\circ}$ , weighs 4.223 gm., a fair estimate of the total weight, allowing for wide stretches of channel fog free, is 1,000,000 tons. This immense mass is carried through the Golden Gate by winds with an average 22 miles an hour, from 4 to 5 p. m. the number of hours is 1000.

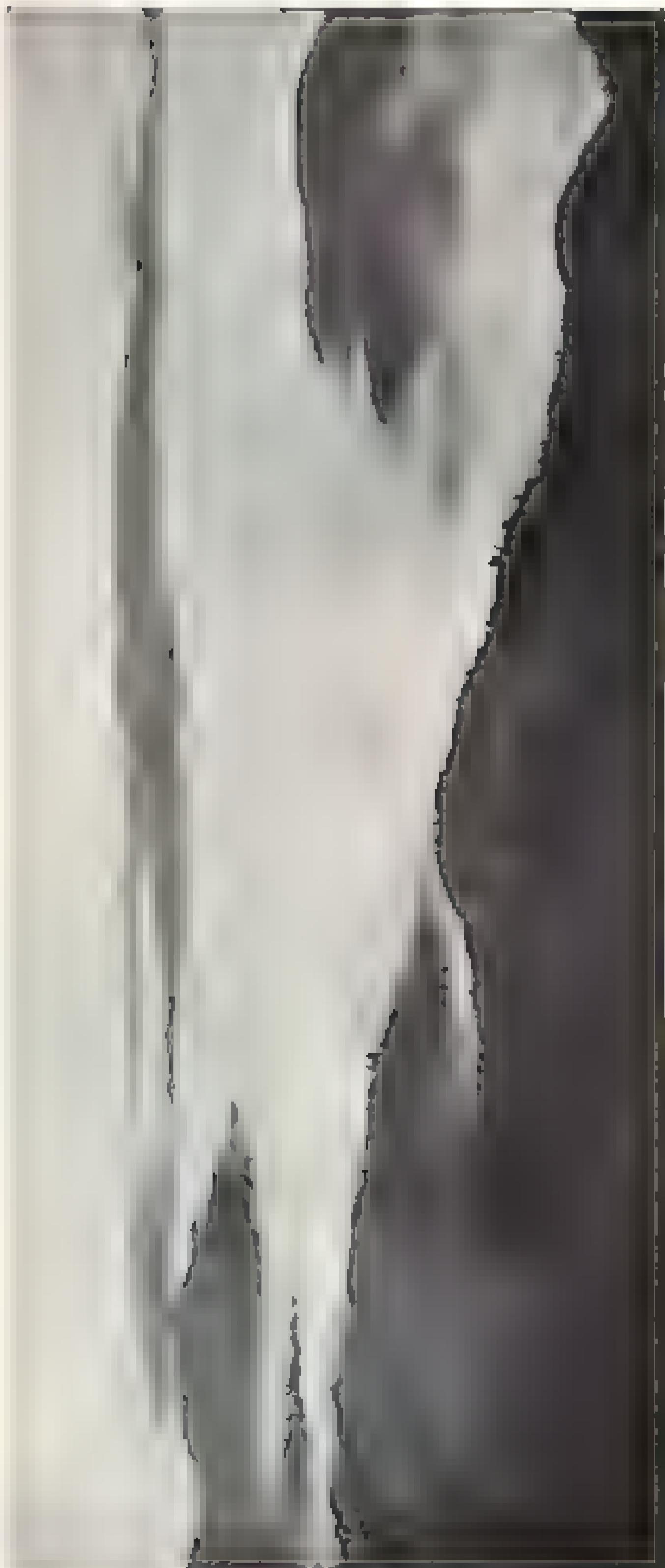
The Golden Gate Weather Bureau is reporting us a station on Mt. Tamalpais a wind is about half a mile above sea level and this above the fog, at the head of San Francisco, where the

average wind a third station at the center of origin of the fog. Mt. Tamalpais is 106.25 miles from Point Reyes and 100 miles from San Francisco.

The differences in the temperature and humidity of these three stations is most marked. The highest temperature is recorded on the mountain during the year 1891 was  $65^{\circ}$ , on July 18, the maximum temperature on the same day at San Francisco was  $45^{\circ}$ .

It was 30 degrees cooler at the top and 43 degrees hotter than at Point Reyes. The mean annual temperature of the three stations is, however, about the same for all  $55^{\circ}$ , which is also the

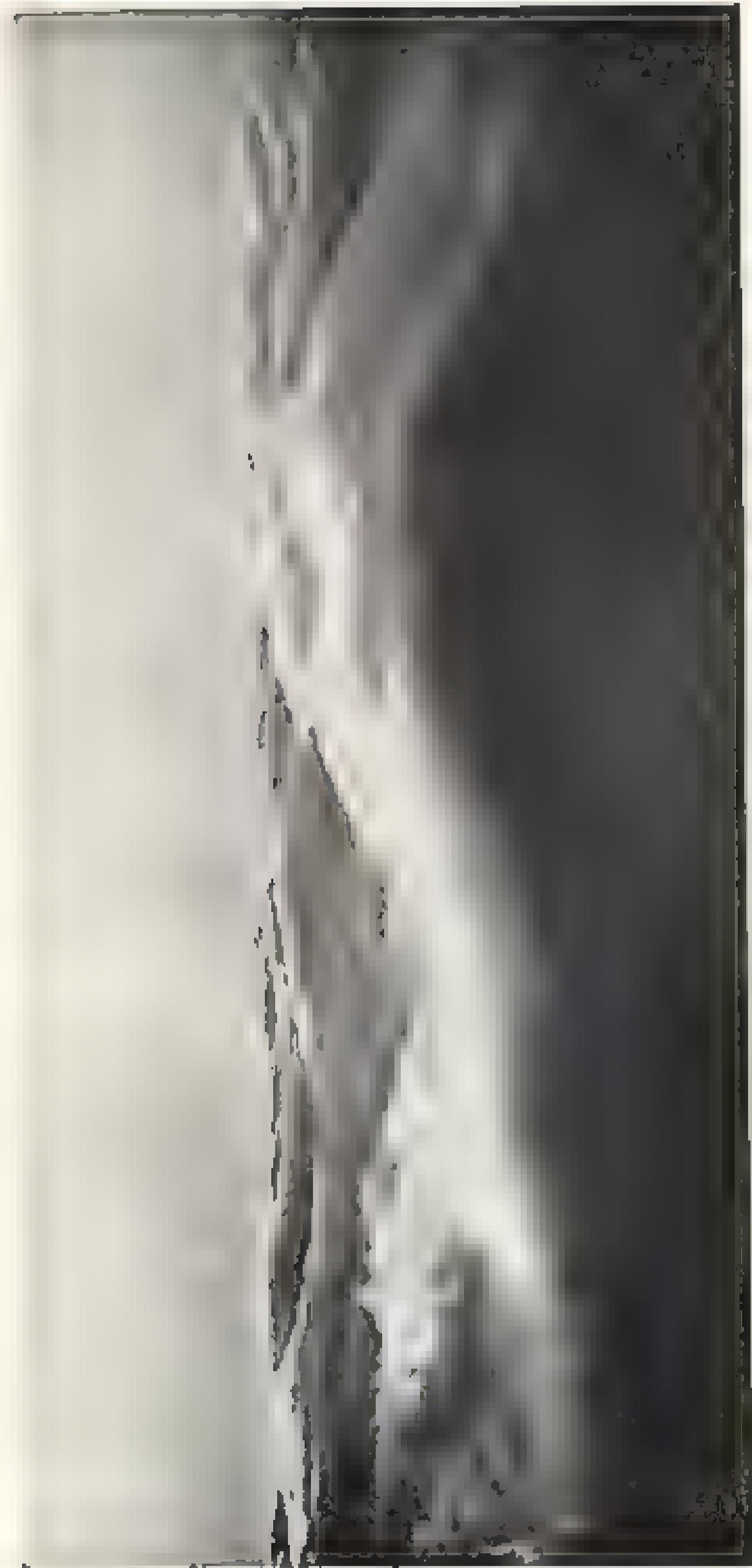
\* An abstract of a paper given before the California Academy of Science by Mr. A. E. McAllie, Director of the San Francisco Weather Bureau.





1. *Introduc-*







mean annual temperature of the ocean in the vicinity of 56° F. During the summer months owing to the fog, there is probably a cooling of at least 10 degrees at the water stations. But in winter, owing to the lower clouds, the reverse is true; the temperature near the sea shore being deeper than on the mountain. The mean relative humidity at the station on Mt. Tamalpais was 59 per cent while that at San Francisco was as high as 83 per cent. The average hourly wind velocity for the higher stations is also much greater than that of the lower station. The maximum velocities recorded being respectively 40 and 47, and about this proportion is maintained throughout the year.

The Weather Bureau officials of the City receive frequent reports from Point Reyes and Mt. Tamalpais, until it is possible to issue a daily chart showing the extent and character of the sea fog over Drake's Bay, the Golden Gate, and the Golden Gate.

Similar to Mr. McAdie has a special study of fog conditions. His method of obtaining a cross section of the fog is very ingenious. A descent from the station to sea level can be made in the trap basket, fifty minutes, a distance of eight miles. A kite measure-

graph is attached near the top of an open-coned car, containing glass vials, and carried through the fog, in this way a number of times. From these data it is learned, a height cross-section is made. A typical pressure distribution accompanying sea fog has been recognized. In general, a movement southward along the coast of an area of high pressure from over land, fresh in easterly winds and light temperatures to the interior of the State with fresh westerly winds. In fact with fog on the coast.

The illustrations that accompany his paper depict very graphically the variation of fog effects. Figure 1 shows the morning fog over the valleys—the most common type of fog. Figure 2 shows a mass of inland sea fog in a state of comparative rest. Figure 3 shows the stronger sea fog passing in a night to rest through the Golden Gate and submerging the neighboring hills. Figures 4 and 5 show the great billows of a wind-driven sea of fog.

To Prof. Cleve and the editor of the *Monthly Weather Review*, and to Mr. Alexander G. McAdie, of San Francisco, the NATIONAL GEOGRAPHIC MAGAZINE is indebted for the photographs.

## GEOGRAPHIC PLACES FROM REPORT OF THE 1911 PHILIPPINE COMMISSION

**T**HIS total amount of land in the Philippines is 73,454,415 acres. Of this amount it is estimated that about 4,000,000 acres are owned by individuals, leaving 69,454,415 acres.\* The land has not been surveyed and these are merely estimates. Of the

public lands, there is about twice or three times as much a forest land as there is waste land. The latter is most fertile and for the greater part naturally prepared. There was a very great deficiency in this land, but owing to the irregular

system the natives generally abandoned efforts to secure a good title, and contented themselves with rearing

\* The following are estimated figures: a few

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on the land as simple squatters, subject to eviction by the State. In 1893 the Minister for the Colonies reported to the Queen of Spain that there were about 2,000 squatters on the public lands, but it is thought by employees in the revenue bureau, who have been in a position to know, that there are far more than that number. In the early days of the archipelago the proportion of private land to public land is about as stated above, except in Mindanao. Moreover, as I know where the proportion of public land is far greater.

The insufficient character of the public land system under the Spanish Government in these islands makes it unnecessary to refer in detail to what that system was. As there were no surveys of any particular or whatever the best thing to do is to establish a different system is to have the public authority surveyed. This is a work of years, but it is thought that a system of the laws of public lands can be implemented & carried out until the survey is completed. Large amounts of American capital are only awaiting the opportunity to invest in the agricultural field which may here be developed, in view of the decision that the American Government has no power to part with the public land belonging to the United States, and that that power rests alone in Congress, it becomes very evident, to assist the development of these islands and their prosperity, that Congressional authority be vested in the government of the islands to adopt a proper public land system and to see the land on a proper basis.

### MINERAL WEALTH AND INDUSTRY

It is difficult at the present time to make any accurate general statement as regards the mineral resources of the Philippine Islands. There has never

been any true & property so called, in this archipelago up to the present time. The mining fields have never been thoroughly prospected and even where very valuable deposits were known to exist they were worked, if at all, in a haphazard and intermittent fashion.

Present indications are that the near future will bring a great change in the mining industry. According to the chief of the mining bureau there are now some twelve hundred prospectors and practical miners scattered through the different islands of the archipelago. Of these probably one per cent are Americans. They are for the most part men of good character. They are pushing their work into the more inaccessible regions, frequenting their own protection, and doing prospecting of a sort and to an extent never before paralleled in the history of the Philippine Islands. The result is that over a large part of the mineral resources of the group is rapidly being worked out. A large amount of mineral for prospectors' exaggerations. It is not too much to say that the work thus far done has demonstrated the existence of many valuable mineral fields. The provinces of Benguet, Lepanto, and Bulacan in particular form a district of very great interest.

In the province of Lepanto, in Mindanao and in Mindoro, there are immense deposits of gold & copper & silver & sulphide, and running through this are veins of gold bearing quartz which is more or less disseminated and is extremely rich. This copper ore has been assayed and the claim is made that it runs on the average 8 per cent copper while gold is often present in considerable quantities. The deposits are so extensive as to seem almost inexhaustible.

The Government has been unable to verify the statements as to the extent and richness of these copper deposits through its own agents, but the authority for them is such that they are believed to be substantially correct.

As early as 1850-5, two concessions were granted to the Spanish Mining

Board to explore and to develop. Rude methods of mining, however, and of extracting the metal and still more rude and primitive methods of transportation, combined with lack of sufficient capital and available labor, led to the short torment of this attempt and for more than two years the property, which in itself is a solid claim upon the iron-bearing ledge above referred to, has been developed only to the naked extent required by the Spanish mining laws to prevent the claim from being abandoned. The officer in present charge of the mining bureau charges this deposit, as an "under the hillanza." The main thing necessary for its exploitation is the opening up of a road line of communication with the coast.

Lignite is known to exist in Ilocos, Samar, Mindanao, Negros, Cebu, Mindoro and other islands. Some of the deposits are very extensive. As yet they have been worked only at or near the surface.

Technology is unanimous in the fact that the Philippine coals do not compare nor do they soil the boiler to any such extent as do Japanese and Australian coals.

The extensive fields near Ilagan and San Pedro, Marikina, are within four to six miles of a harbor which gives an anchorage throughout the year and which has water deep enough for the largest ocean-going vessels. Some of the Cebu deposits are also conveniently situated with reference to harbor facilities. It is to be confidently expected that the coal will play a very important part in the future development of the archipelago.

The outlook as to gold mines grows more favorable as the copper and zinc prospects are extended. Modern gal-

vanic machinery has never been used in the gold mines. Ignorant miners in

the Ilocos Lepanto district disregard all rock in which there is not visible a considerable quantity of free gold. Prospectors in this region claim to have located very extensive deposits of low grade, free-soluble gold which, yield large and certain returns on the concessions and the better and more durable gold in place. Unless the statements of those who have been working in this region are utterly false, it is fine and very valuable deposits have been located, and that extensive operations now, the undertakers as soon as claims can be grubbed and boundaries placed. At all events it is evident that the men who have located these deposits have sufficient faith in them to camp on them and wait in either of them for the time to come when they can establish their claim.

Extensive deposits of high grade iron ore are known to exist, but it would seem that their development cannot be proceeded by the development of the coal fields.

But before any of the mineral resources of the islands can be developed, mining laws must be enacted and existing claims settled.

#### TRADE AND HIGHWAYS

As may have been expected, centers of population and comparative wealth are to be found at the seaports and termines of the coast, which are more or less accessible to markets by means of water communication, and these favored localities are located in areas of timber, rice or fishing bases, and few except as, trade-route and manufacturers.

As may be here are numerous harbors along the coast line, there are but few that admit vessels of heavy draft. As a rule, they are not banked up, are more or less exposed to the pre-

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whirling typhoons so that there are frequently days, and even weeks, during which ships can neither load nor unload.

Large vessels entering the harbor of Manila having a draft of more than 10 feet, are now compelled to lie two miles or more off the entrance of less draft than has full entrance into the Pasig River. The harbor is so large that it feels the full effects of the winds. The only method by which large vessels anchor and thereby can take on or discharge cargo is by lightering. At best, however, the bay is as in this a laborious and very expensive process, and during rough weather becomes impossible. Moreover, during the prevalence of typhoons, which are not infrequent, the safety of vessels thus situated is often endangered.

The cost of loading business in this port is very great and constitutes a very heavy burden upon enterprising freight rates from Manila to Hong Kong, a instance of which goes to show that as much can be sent to Hong Kong from San Francisco to Hong Kong a distance of about 6,000 miles.

The Spanish Government more than twenty years ago, started out with the sole object of the creation of a thoroughly protected harbor with sufficient depth of water to accommodate the largest ships, and issued a decree on imports and exports to be pursued if making the necessary to fit to carry it into effect. Operations were upon pursued, therefore shortly thereafter and continued for a short time, but were stopped to the use of the great outbreak of cholera, with the result that about 30 per cent of the work contemplated was completed. Work upon

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has been resumed by the Government, which has appropriated \$1,000,000 for

improving the rivers, too, or even permanent roads in the islands

There are numerous waterfalls in the provinces of Leyte and Mindanao, which have their sources in the mountains of the interior and flow to the sea in rapid and broken currents. As a general rule they are considerable in volume and are but not navigable a lot, if navigable, only for a few miles from their mouths, so that they are eliminated in considering the question of transportation.

The so-called *highways* are generally merely rude trails, which in the rainy season, lasting half the year, are simply impassable, and during the dry season are rough and only available for travel to a very limited extent. As a result, there are few routes of the interior which have ever been beyond the boundaries of the town in which they lie. The Coast Guard has appropriated \$100,000 to be expended at once in road building.

The Manila and Iloigan Railroad is thus far the only line in the entire island. It was constructed by English capital and has been in operation since 1892. It has a gauge of 3 feet and 6 inches and traverses a rather hilly, fertile region densely populated. It was perhaps improperly located at the beginning and erroneous as it was due to a number of streams near their mouths, which necessitated much trestle and bridge work, was expensive to construct. This expense, it seems, was defrayed by the necessary requirements of the Spanish Government. As a result it appears to have cost the company about \$60,000 in gold per mile. It is an expensive line to maintain by reason of the fact that several of the streams in season of flood, overflow their banks and inflict much damage upon the road bed. But, whilst it has not earned a fair return on the extravagant sum spent on it, it has done wonderfully much to increasing the population and wealth of the provinces through which it runs and also in striking fashion of the enormous benefits which



11 P. 11

would otherwise were to break out in other sections of these islands.

A line has been projected from Manila eastward and southeastward, running along the shores of Legazpi de Bay across the island to a port on Samar Bay. This port is said to be the best in the islands, far back, affording

shelter to any vessel, and with a depth sufficient to enable vessels of heavy draft to approach close to shore. At this date, the distance from Manila to the United States would be shortened by about 1700 miles. The line would pass through a number of large towns and a rich and fertile country.

## THE PHILIPPINE EXHIBIT AT THE PAN-AMERICAN EXPOSITION

By D. O. NEALE HOFFMAN

**W**HEN the Pan-American Congress was first considered the idea of a Philippine exhibit in the Pan-American Exposition in Buffalo, I expected to find we were destined to have in the great hall a typical native village, situated by gushing streams, with women in colorful

garments, with the Government of Manila, in, a wasit around and the cost of which would be in excess of \$100,000. I suggested a sum considerably in excess of what would have been necessary in more peaceful times. However, the Committee was anxious to have an exhibit of some kind, and declared the sum of \$10,000 to be sufficient. The plan was adopted and the sum of \$10,000 was appropriated for the purpose.

It was further agreed that the sum of \$10,000 should be expended in the purchase of typical specimens, including the following out of a total number of other specimens.

At this was made to include what we people of the Philippines believe make up their own islands. It was to be a base of exchange.

The management of the money appropriated was placed in the hands of

the Philippine Institute, which was founded by the late Col. F. F. Miller to be a repository to collect the exhibits belonging to the Philippine islands, together with those of the

tribes and their customs, at his knowledge of the customs existing in the islands, compiled with his special training suited to fit him in a superior degree for this work.

Colonel Miller, a native of Venezuela, well informed of the customs, and gathered a number of valuable material of great interest and importance to the people of the United States. He had collected of one thousand pieces illustrating every phase of native life—every occupation and condition, every age and sex, every occupation pastime, and every art of war are has a place in the

As arms, bows, swords, and canes are the objects to which the following list of items, for there are among a number of head gear of various kinds to fill a list of enough arms, armor, plow or handfully carried, to arm a regiment-sized company, and enough canes to stock the stables of a country fair mounted and

The swords are of different shapes. They are all sharpened to the acute of a razor. The *bulao* is the principal weapon. It is very short, but according to an old edict of the Spanish regime the blade could only extend from the wrist to the elbow in length. It is enough to give one an aspergillum of blood. It is used just in cutting sugar-cane, etc. The case is of wood and very often merely bound with twine so that the wielder can strike through it in less than the time it takes to draw the sword. The common *bulao* has a blade of steel, a wooden handle and an iron ferrule though some have handles of copper and are far rarer in appearance and design. One very formidable and unusual weapon is the *kris* sword. This has a wave-shaped blade of steel, the handle being of wood bound with native twine.

Passing to articles of more practical use one of the first to attract attention is the "Luyut," a mortar used by the Tagals as a receptacle in which to sift the husk from the grain by pounding with a wooden pestle. It was the unusual use of this article that caused the Spaniards to give the name of *Luzon* to these islands.

Then there are in this and other tribes countless articles showing the manner of making their different cloths—bark, fiber, fine cotton, etc. These cloths are found in many beautiful colors—pink, violet, orange, yellow, etc., and some are richly embroidered. Every article of domestic use is to be seen laundry, traps and traps, scrubbing brushes made of half of a coconut in the shape, and brooms made of the straw and that necessary household article the back-scratcher, formed of a small piece of conch shell with serrated edge faced with horn and bound to a long bamboo handle. Very suggestive of the popular song of the day are some samples of *gonggo* soap bark. This bark is especially adapted for washing the hair,

leaving it soft and glossy, and produces thick soaps the same as soap. Extreme care must be taken not to let it get into the eyes.

The native hearth is merely a rectangular frame of wood raised on four uprights of squared lumber, the bottom is covered by a mat of woven strips of bamboo, the whole forming a box-like construction in which has been laid a quantity of hard dried earth or gypsum, on which the fire is laid. Poles of the substance in the shape of small elongated cones serve to support the mats. At the back of the earth fire is placed a the two rear uprights is a piece of bamboo with two legs at its end, two holes cut entirely through in which splices join other竹竿 are placed when not in use. The three wooden pots with these legs are of red earthenware and are in incised designs. The splices are made of conch shell over on handly strips of rattan.

Making the fire on a cold morning is the unpleasant sort of work. The owner, however, does not grumble after he has seen the set of fire-making instruments used by the Filipinos and have had explained to him the labor and task of fire-making a light. A piece of wood is whittled through the middle is placed on any convenient spot with some bamboo shavings beneath. Another piece of bamboo is then rubbed thereon in the shape of a triangle until the shavings smoke when the shavings are fanned into a flame.

A mace of a bat or coconut shell the top forms one of the most interesting parts of the no animal section. The operator sits on a cross beam and with his feet revolves, by means of two pulleys, a little metal shield around him to the operator. The meat of the coconut is then moved to a second worker, who crushes it by means of a roller which is pulled back and forth with one hand. The meat thus crushed enters a

press, which not only presses out the milk and oil but also keeps back the

seepable underneath the press is filled with fire. I think and water, it is drawn to a fire where the contents are heated in caldrons and the oil rises to the surface and is skimmed off.

The farmers of the Philippines have their plow in use quite as well represented. One will find a fine old iron agricultural implement and the heavy heavy plowshare, we go on. The plows are for the most part made entirely of wood, with the exception of the share which is of iron. The furrow is formed of a number of pieces of bamboo held together by three transverse rods passing through the pieces of bamboo. The teeth are formed of a thin of branches with cords and yoke attached for the oxen.

The earthenware and wood their form

the day weather along the shade roads and in the rice swamps. This is very little and will not be able to alter and create comment on the weather conditions prevailing on the Island of Luzon.

The bill pao rice reaper is made with a handle of wood in the shape of a hook and a handle of steel fastened on the under side of the grip. In using this implement it is held in the right hand and the hook gathers in the rice while the left hand holds open the

harvest and when they see a farmer's clothing such as is worn by the agriculturists among the Tagals of Luzon. It consists of a shirt of buri cloth, a pair of trousers, and a piece of cloth worn for carrying articles over the shoulder or on the back.

That the rice still supplies the wants of the Filipinos to a great extent is shown by a supply of rice

nets, seines, shrimp and crab traps. Their fishing boats are called *barcas*. One of the most interesting things in the fishing line is a *seashell boat*. Ponto is fishing point in the suburbs of Manila. The apex of this shell is sawn off to form a mouth piece and is used on the seashore to call out when large schools of fish are found.

In the outfit there is a milk tender's outfit, such as is used in the cities of the Philippines. The outfit consists of a black earthenware jar hung in a network of rattan partly covered with leather, a wooden shoulder yoke for carrying the jar, a patchet formed from one section of a large bamboo with a wooden handle attached by wire, and a measure also formed from a section of bamboo braided with the exception and because number of the vessel.

Cutter blades are represented by appropriate exhibits in the set being presented and tools of native carpenters. The punts are made of heavy earthenware. There is a set of native carpenter's tools and a native barbecue basket's outfit, with samples of tan red leather, a set of blacksmith's tools, and a set of mason's tools.

The amusements and forms of recreation of the Filipinos also have a place in the collection. They are evidently a musically inclined people judging from the various forms of a native band of instruments with their instruments—wood, slate, flute, guitar, violin, and cello. In the social collection are a beautiful harp made of two kinds of native wood and ebony, and an instrument supposed to be a drum, made from four sections of bamboo, each open at one end and closed at the other. The sections are inserted in one another at right angles and the joints made tight with a lacquey gun, the last section being fastened to the main tube by rattan. The drum is to be hit vertically and placed in a same manner as a casket.

The Filipinos have many forms of amusements, but the greatest of them all is cock-fighting. There is in the Huker Collection a cock-by-the-box, containing four steel gaffs to fasten on the legs of each a spur and four leather to restrain them when not privately engaged. *Pinata* (right), a popular game is shown. Natives in nearly every part of Luzon play this game, which is associated with much betting. Roulette wheels and other games of chance are much in vogue throughout the island. In the collection shows

Foot ball must be a popular game in Manila, judging by a box which the Captain tosses and kicks about. It is now more frequent than our regulation football, being made of a number of

strips of strips of raffia tied in the form of a "Tuck's head" knot.

Five illustrations of Filipino warfare are fifteen cylindrical canisters of native Filipino muskets, formed of sheets of tin bound around two circular pieces of wood, they are fired with a setup of iron and fired by incendiary shot smooth bore guns at very short range, and a howitzer cannon bound with wire, captured by the Allies from Japanese at Iwo Jima.

The exhibit comprises much more than can be told in this article. It

is given to give information as to current interests and to show ideas and opinions concerning the Philippines and their people.



## GEOGRAPHIC NOTES

### TOPOGRAPHIC MAPPING OF THE UNITED STATES.

**N**early 50 per cent. of the area of the United States have been mapped by the experts of the U. S. Geological Survey during the past twenty years. New England, the mid-Atlantic States and small sections of Wisconsin, Iowa, Louisiana, and California have been mapped in the scale of one mile to one inch and their elevations and surface expressed by contour lines located at intervals of 5 to 20 feet vertical. Maps of large sections of Kansas, New Mexico, Texas, and Virginia have been made on the scale of two miles to one inch and with contour lines indicating vertical intervals of 20 to 10 feet.

Mr. H. M. Wilson of the Geological Survey, contributes in a recent number of *The Engineering News* an interesting statement of the breadth of work of the survey and expresses its great practical value. As an example he mentions the case of the city of Waterbury, Conn., which, after spending \$2,000,000 in fruitless searching for sources of water supply, learned from consulting the Government topographic maps of a source of good water previously unsuspected. The survey expense nearly \$20,000.00, in making these maps. Maps states also appropriate large sums to assist the work of the survey in the particular areas. New York, Pennsylvania, Maine, Michigan, and Maryland annually appropriate \$2,000 to hurry the completion of the mapping of their territory. The expense of mapping naturally depends upon the character of the country. The cost of mapping the open country is from five to ten dollars a square mile, 1/4 of the admissions of total area about double or triple that sum.

The results of these surveys are published on sheets approximately 10 $\frac{1}{2}$  by 20 inches and represent quadrilaterals of 5 or 30' of latitude and longitude according as the scale is one or two miles to the inch.

The atlas sheets can be procured at a rate of 10 cents on application to the Director of the Geological Survey.

### THE GERMAN CENSUS.

**T**HE figures of the last census of Germany reveal some very significant facts relative to the great industrial or financial contest that is now being waged in the Empire. The census was taken on December 1, 1890. The growth of the cities, the manufacturing centers, during the preceding five years has been unprecedented in the history of the Empire. Of the thirty-three cities with a population of over 100,000, every one but Crefeld shows a great increase. Crefeld has decreased by 200, owing probably to the high tariff in the United States on silk goods which has caused Americans to import only foreign silks of the highest grade. As a result more hundreds of persons in Crefeld who were formerly employed in the silk factories were thrown out of work. Crefeld manufacturers have now begun to turn their attention to the making of cotton and woolen goods and it is hoped that the next census will show an increase, and a decrease in the population. Among the cities which show the largest increase is Berlin, which has added over 207,000, or 12.5 per cent., to the number of her inhabitants, making her present population 1,851,346, not including the suburban cities. Inclining over 100,000, Berlin numbers 9,000 more.

The city that has increased most rapidly is Darmstadt, which in five years

and about 5,000,000 in the city, in a total popu-lation of 4,000,000,000. This is due largely to the addition of Nuremberg at the point of junction of many highways and of seven railroads. The city of Dresden has increased to 42,000 since 1895, largely by the influx of Germans and agricultural people from the country, who especially from France.

It is now a military base, also railway, and in 1906 a population of 6,264, making it the greatest as the seat of a state.

Leipzig has a population of 72,000, making a population of 704,000, Nuremberg, 87,000, making a total of 4,08,000. Leipzig increased 25,000 in a present population of 455,000, Dresden 25,000 to 45,000, and Frankfurt has increased 20,000, making her population 287,000.

These figures show clearly that the Germans are becoming more and more a manufacturing race. The railroad owners are becoming a armed and are even discussing the advisability of importing Chinese to work on their farms.

The population of the empire is 40,345,000, an increase of about four million or of 7.78 per cent within five years. It is interesting to note that there are nearly a million more females than males whereas in the United States the proportion is reversed.

#### EFFECT OF SNOWFALL ON WATER SUPPLY.

Some very interesting conclusions have been published by the experts of the U. S. Weather Bureau, who have for several years been studying the effect of winter snowfall on the water supply of the succeeding summer. The observations have been confined to the arid regions of the West, more particularly Colorado and Utah, where the rivers and streams derive their principal water supply from the melting of the snow on the mountains.

The generally prevalent belief that a winter of heavy snowfall is an indicator of swollen streams in spring and summer is not necessarily correct. It is not the quantity of snow that is to be considered so much as the time of the snow. If the soil when winter sets in, the quality of the snow, and the time when it falls, all determine whether streams will continue to fill late in the season and furnish an abundance of water for irrigating canals. An unusually heavy snowfall in March will certainly be followed by drought in late spring and summer unless it is snow was preceded by a thaw in the early winter. It is the snow that falls in November and December and thus becomes packed hard during the winter and melts slowly in the spring and summer, that keeps water in the streams till summer is nearly over. The snow that falls in May and June has no time to become packed and hardened. The first warm breath of spring melts it with a rush, the streams overflow for a few days, then gradually the streams subside and a drought.

The issuing of special snow bulletins has been continued this year at the section of sections of the U. S. Weather Bureau in Colorado, Montana, Idaho, Utah, New Mexico, and Wyoming. These bulletins give the average amount of snow on the ground, the amount to be further lost, and the depth of the snow at that the snow begins to melt. With knowledge of the depth, character, and distribution of the snow, the Weather Bureau experts are able to give a reliable general forecast of the water supply for the ensuing season for the different streams of the arid section. The former thus learns from his calendar the quantity of water his irrigating districts are likely to receive. The weatherman also knows the snow will melt with speed. In early spring clouds of snow begin to fall on the plateau

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was keeping to a tree, close to water when the sheep had traced 40 to 50 miles, and by knowing the character the amount of the snow in the mountains the herder can know a route where water will be plentiful.

## GEOGRAPHIC NAMES.

The following decisions were made by the United States Board on Geographic Names, February 6, 1901.

Amphitrite, the channel across Sand Hook Bar, New York Harbor, for nearly known as East Bar, not water-timed Amphitrite Channel by an act of Congress approved June 5, 1890. In that act it is "Ordered That the so-called East Channel across Sand Hook Bar, New York Harbor, for the improvement of which provisions were made by the river and harbor act, approved March third, eighteen hundred and ninety, in this will hereafter be known as Amphitrite Channel." Started at large, both Congress, 1st session, 1890 and 1891. The name Amphitrite is here included and is a decision of the U. S. G. S. but not a decision by Congress.

Amushook, part of Maysville, Morris County, New Jersey (not Conshoneck).

Cove City, township, Crawford County, Arkansas (not Cove).

Carrett, half a M. J. town, Monmouth County, New Jersey (not Carter or Carteret).

Citterberg, post-office and railroad station, Clayton, L. C. C., Iowa, not Citter or Lure.

Keekurik; cape near Gold Bay, B.aff. of St. L., Alaska (not Kahn or Neekpax, nor N. thakkaluk).

Keekut; moat and triangulation station near Faro, Elie Mannington County, Arkansas (not Keekeet).

Kukur, river tributary to L. Attagashay, Belin Canal, southeast Alaska (not Kukur or Kukukur).

Leerhile, post office, Beaufort County, South Carolina (not Leerhile).

Steele, point, the easternmost point of Head of Cook Inlet, Prince William Sound, Alaska (not Bennett's Point).

Title, lake, Tols County, N. Scotland (not Saint).

West Point, United States Military Academy, New York (not West Point).

## CHARTING THE HARRORS OF THE PHILIPPINES.

Decisive steps have been taken by the U. S. Coast and Geodetic Survey for charting the harbors and coast of the Philippine Islands. A sub-office of the Survey has been established at Manila, in charge of G. R. Putnam who has a force of ten charting officers to assist in the work. In the early spring of the work will be commenced and pushed so that it is hoped that sufficient accurate data will have been obtained by the fall to complete the preparation of charts of the larger harbors along the coasts. There are 1,000 harbors of the Philippines that serve as points of distribution for the scattered and trade and these also must be charted.

## GEOGRAPHIC LITERATURE.

**The Century Atlas of the World**  
published under the supervision of  
Stephen C. Scudder. New York  
The Century Co., 1899. \$7.50.

The Century Atlas, which was first published in 1877, and followed by a second edition in 1889, has doubtless been consulted at various times by every reader of this Magazine. A review or notice of the Atlas would now be superfluous. The publishers, however, have made such a generous proposal to the members of the National Geographic Society, and to the members of one or two other scientific bodies in the United States, that the great value of the work should again be emphasized.

The Atlas was originally published as a separate volume to enable subscribers to the Century Dictionary to complete their sets. At the end of a few hundred copies remain. These the publishers have offered to members of the National Geographic Society at one-half the original price, \$6.00 instead of \$12. The Atlas will not be sold separately, however, as these copies are disposed of, and can then be obtained only by purchasing the entire set of 10 volumes and paying \$75. "The Century Library and

The Atlas" cost \$17. double-page maps, 135 inset maps, and 43 larger cultural and astronomical maps. There are nearly 200,000 references to places in the indexes. To each of the principal states two or three maps are allotted showing all the rivers, lakes, and mountains in great detail. Maps of the large cities with their environs are presented and the harbors of great seaports are also clearly charted. In the foreign maps the Century Atlas exceeds the maps of China and the Far East being especially valuable.

**Moore's Meteorological Almanac and Weather Guide.** by Prof. Willis L. Moore, LL.D. Chief of United States Weather Bureau. With illustrations and 32 charts, pp. 128. Chicago and New York. Rand, McNally & Co., 1901. \$0.25.

Unlike the traditional almanac that is crammed with queer statements and queer dates, this little book is a reservoir of reliable information for "the agriculturist, the horticulturist, the shipper, the master, the merchant, the tourist, the horticulturist, and for those who wish to learn the art of weather forecasting."

Perhaps the most interesting and valuable chapter is that on "the cyclone and the use of the weather map," which explains how an amateur, by consulting the government daily weather chart, can follow the track of storms and with considerable accuracy forecast the weather. The difference between the cyclone and the tornado terms may be used as synonymous, as emphasized in another chapter. "The cyclone is a horizontally revolving bank of air covering an area from 2,000 to 10,000 miles in diameter, while the tornado is a revolving column of air of only 100 to 1,000 feet in diameter, and is simply an incisor of the cyclone." Prof. Moore states further the subject of "Protection against frost" that, in his opinion, with approved appliances, the fruit districts of California and the orange groves of Florida can secure material protection against frost. Other instructive chapters are: "Long range forecasts," "The Galveston Hurricane of 1900," "Loss of Life and Property by Lightning," "Weather Bureau Boxes," and "Temperatures injurious to Food Products."

# PROCEEDINGS OF THE NATIONAL GEOGRAPHIC SOCIETY

## Popular Meetings.

February 1, 1907.—President L. C. Ladd in the chair. Dr. Don Juan N. Navarro, Mexican Consul General in New York city, delivered an illustrated address, "Mexico of Today."

February 25, 1907. Vice-President W. J. McVee in the chair. Mr. Ernest T. Crosby delivered an illustrated address, "Explorations in Abyssinia in 1906."

## Technical Meetings.

January 29, 1907.—President L. C. Ladd in the chair. Prof. Alfred J. Henry, of the United States Weather Bureau, read a paper on the anomalous distribution of rainfall in the West and Southwest United States during the eleven years 1888-1898. In this study, Professor Henry said, years of rainfall came into line with each other in a very irregular manner. A single dry year may be followed by a second and even a third, but rarely by a fourth. Wet years likewise may occur in groups, but the number of years in a group seldom exceed three.

In the case to which attention was particularly called eleven consecutive dry years were experienced. The amount of deficiency at the several stations varied largely. In some years it was not more than 10 per cent, the mean amount for all others it was 24.1, or 20 per cent. Happily the mean annual rainfall in the region referred to is so great that an annual deficit of 20 per cent does not create serious trouble.

Dr. H. C. Brackenridge reported that later the deficiency of large extent was due to pedogenic causes of the soils growing at the surface, or, as he put it, "soilless soil of red-brownish ochreous Professor Henry replied that the defi-

ciency was confined to high ridges and small knobs and even to exposed parts on the sea coast. It was probably due in part to a shifting in latitude of the paths of storms and to a diminution in the number of tropical disturbances arising in the Gulf of Mexico or advancing toward the south sea coast of the United States from the Caribbean.

Prof. W. H. Moore called attention to the very great paucity of meteorological records and the exceedingly short time that such records had been con-

tinued. We should have been at a standstill three years if observations before we could hope to account for such marked variations as had been described.

Mr. N. H. Burton read a paper entitled, "The Powder River Range in Eastern Wyoming." The title of Mr. A. C. Spangler's paper was, "A High Plateau in the Copper River Region of Alaska," an interesting description of certain physiographic features of that section of Alaska. In "The Distribution of Trees and Shrub in Alaska," Mr. A. Coville

in Alaska and gave several possible explanations of the strange absence of vegetation on the Aleutian Islands.

February 4, 1907.—President L. C. Ladd in the chair. Prof. Frank H. Eggers read a paper entitled, "The Weather Bureau of the United States," the first but the only successor of his important work that the Weather Bureau has been proceeding during the last two years.

The reduction of barometric readings of pressure, taken at the stations on the Rocky Mountain Plateau to the sea level, has been a problem of special importance to the Weather Bureau, on account of their importance in furnishing data for weather maps. It is also one

of much more difficulty of some errors may in the elevation of the stations, and the higher temperature argument to be used in making the necessary reductions. With the loss of one the necessary observations have accumulated to such an extent that it has become desirable to reduce the entire series taken during the past 30 years to a homogeneous system, with the epoch January 1, 1880. Professor Stegeman has been conducting this research for the past two years and the work is now approaching completion.

The present investigation has included a complete remodeling of the station elevation data, the reduction of all the pressures to a normal station pressure which has never been done before, by the application of a system of correctors for elevation, gravity, instrument calibration and diurnal variation. The careful determination of the temperature gradients in latitude, longitude, and altitude, the reduction to sea level by new tables, the determination of residuals due to real abnormalities, to diurnal elevations, and to a complete series of cosey variations, as for those of only a few years duration, and the further correction of the station pressure to a homogeneous normal system.

This work will also enable the maps of pressure, temperature and vapor tension on the three following planes made at 3,000 feet, and 6,000 feet. From these data it will be practicable, in connection with the gradients obtained from the Lister and Cluny Observatories, to make monthly weather maps on the three planes above mentioned and thus to provide for the means of studying the behavior of storms and the atmospheric circulation generally over areas of the sea to which the forecaster is at present fitted for a spheroid.

Mr. C. Barnard presented a plan of

#### ANNUAL SOCIETY MEETING

In 1901," by Edwin W. Helle.

*March 25.* "The Two Ends of the Earth: Peary and the North Pole, and the Cruise of the *Alert* in the Arctic Seas," by H. L. Bowditch and Fredrick A. Cook.

*March 29.* "The

ways of the Russian Empire," by Alexander Herzenberg.

These meetings will be held in the Congregational church, Tenth and G streets northwest, at 8 p. m.

Technical meetings for the reading of papers and for discussion will be held in the hall of the Cosmos Club, Friday evenings, March 3 and 13, at 8 p. m.

As previously announced, the subject of the lecture series of lectures for this year is "The Countries of Asia." The dates and lecturers are as follows:

*March 5.* "Western Asia," by Talbot Williams, D. D., of the *Philosophical Review*.

*March 12.* "Eastern Asia: China." Notice of lectures to be given later.

*March 19.* "Southern Asia," to be announced later.

*March 26.* "Northern Asia: Siberia," by Edwin A. Grosvenor, Professor of History and Government in Amherst College.

By W. J. McGee, Vice Presidential Geographic Society.

These lectures will be given in the Columbia Theatre, Twelfth and K streets northwest, at 8 p. m.



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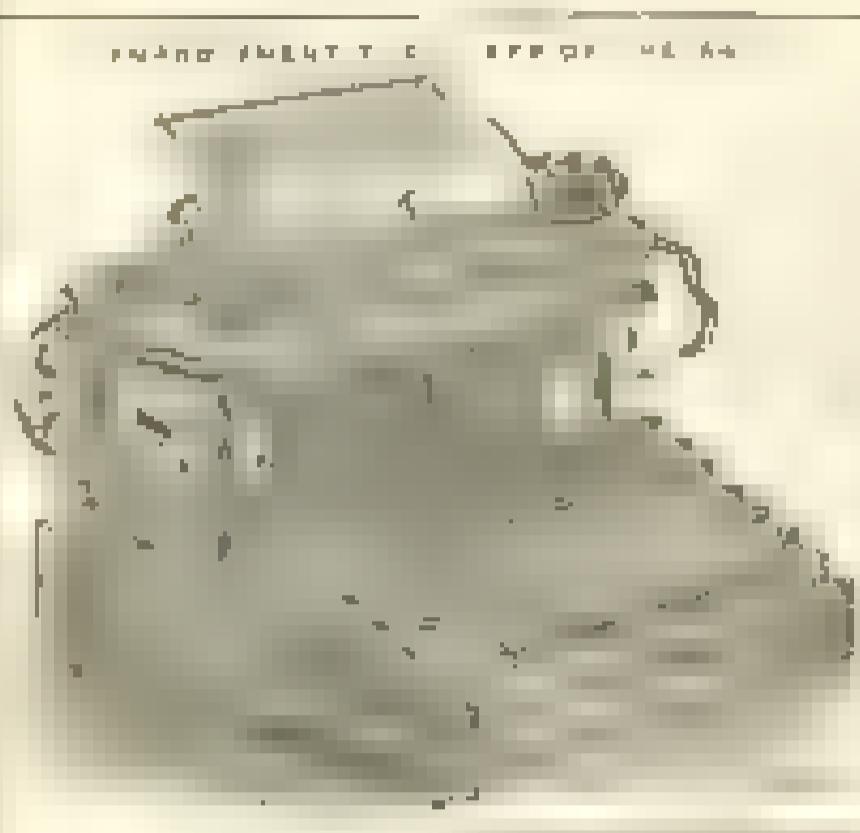
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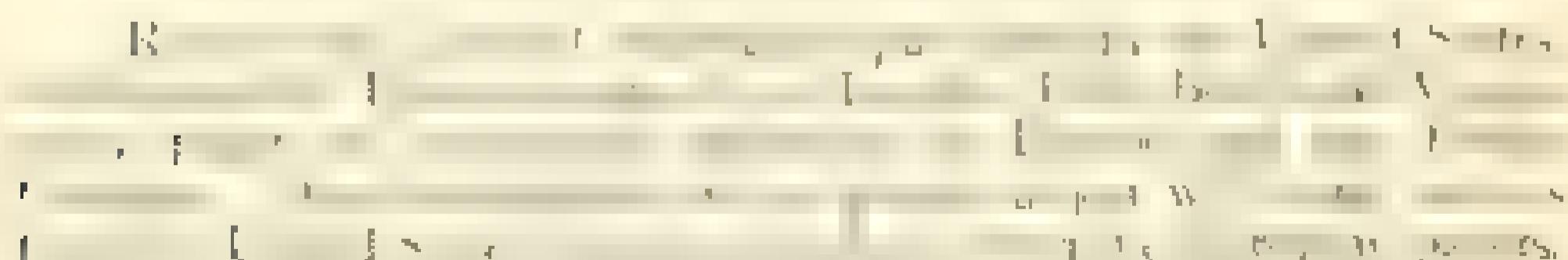
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